AMENDMENTS TO THE SPECIFICATION

In the specification, please insert the following new paragraph after the paragraph starting with "FIG. 5 illustrates..." on line 4 of page 5 of the specification:

"FIG. 6 is a schematic view of a fuel cell system including a fuel cartridge with an information storage device, a pump, and an MEA for powering an electronic device."

Please delete the paragraph starting with " The fuel gauges described herein do not depend..." beginning on line 18 of page 12 of the specification and replace it with the following paragraph:

"The fuel gauges described herein do not depend on any orientation of the fuel cartridge; they can function in any orientation. These gauges are usable with pressurized and non-pressurized fuel supplies containing any type of fuel for use in any fuel cell. Also, these fuel gauges can be read by controller(s) such as those disclosed in co-pending application entitled "Fuel Cell System Including Information Storage Device and Control System," filed on even date herewith and published as U.S. Patent Application Publication No. US 2005/0118468 on June 2, 2005. This co-pending application is incorporated herein by reference in its entirety."

Please insert the following new paragraphs prior to the paragraph starting with "While it is apparent..." beginning on line 25 of page 12 of the specification.

"As described in the '468 publication, referring to FIG. 6 which corresponds to FIG. 1 of the '468 publication, an embodiment of a fuel cell 10 according to the present invention showing an information storage device 23 capable of controlling the sensors of the embodiments as described above. In the present embodiment, a housing 17 supports, encloses and protects an electronic device 11 and its electronic circuitry, a pump 14, and a membrane electron assembly (MEA) 16. Housing 17 is preferably configured such that fuel cartridge 12 is easily removable from a chamber in housing 17 by the consumer/end user. Fuel cartridge 12 possesses an ability to store information such as fuel content including fuel content during usage, fuel quantity, fuel type, anti-counterfeit information, expiration dates based on age, manufacturing information and

to receive information such as length of service, number of refuels, and expiration dates based on usage. A more complete list of relevant information is listed below."

"A controller 18 is preferably provided within housing 17 to control the functions of electronic device 11, cartridge 12, pump 14 and MEA 16, among other components. Preferably, the housing also supports at least one optional battery 19 for powering various components of fuel cell 10 and electronic device 11 when MEA 16 is not operating or during system start-up. Alternatively, optional battery 19 powers controller 18 when cartridge 12 is empty or when fuel cell 10 or MEA 16 is off. Optional battery 19 can be replaced by or used in conjunction with solar panels."

"With further reference to FIG. 6, fuel cartridge 12 comprises an outer shell or outer casing 21 and a nozzle 22. Outer casing 21 supports information storage device 23. Controller 18 can also read operating information, such as temperature and pressure of the electronic device or the fuel cell and the electricity produced by the fuel cell, and write or record this information on information storage device 23. Due to information storage device 23, fuel supply 10 possesses an ability to store information such as fuel content including fuel content during usage, fuel quantity, fuel type, anti-counterfeit information, expiration dates based on age, manufacturing information and to receive information such as length of service, number of refuels, and expiration dates based on usage. A more complete list of relevant information is listed below."

"Suitable information storage devices 23 include, but are not limited to, random access memory (RAM), read-only memory (ROM), programmable read-only memory (PROM), erasable programmable read-only memory (EPROM), electrically erasable programmable read-only memory (EEPROM), flash memory, electronically readable elements (such as resistors, capacitance, inductors, diodes and transistors), optically readable elements (such as bar codes), magnetically readable elements (such as magnetic strips), integrated circuits (IC chips) and programmable logic arrays (PLA), among others. The preferred information storage device 23 includes PLA and EEPROM, and the present invention is described herein with the EEPROM. However, it is understood that the present invention is not limited to any particular type of information storage device 23."

"Typically, information is stored as zeros (0) and ones (1) in the binary system. Groups of these binary digits form octal digits (groups of 3 binary digits) or hexadecimal digits (groups

of 4 binary digits). Hexadecimal digits are commonly used for ease of reading information storage device 23."

"EEPROM is a user-modifiable read-only memory that can be erased and rewritten or reprogrammed repeatedly throughout its useful life through the application of higher than normal electrical writing voltage on the same pin among other programming MEAns. EEPROM does not need to be removed from the fuel supply to be modified. Advantageously, portions of an EEPROM can be write-protected, *i.e.*, information originally written is saved and protected from the writing voltage, while other portions of the EEPROM can be repeatedly rewritten. Additionally, an EEPROM, similar to other ROMs, does not need electrical power to maintain the memory or data stored thereon. Hence, when an electrical device powers up, it relies on the information stored on an EEPROM to start-up and runs its programming. To erase and rewrite an EEPROM, a controller directs a predetermined voltage at a particular location of the EEPROM to store new information thereon."

"EEPROM, as well as the other ROMs, are widely available commercially. Suitable EEPROMs are available from Cypress Semiconductor Corp. of San Jose, CA, and Altera Corp. of San Jose, CA, ATMEL Corporation of Hayward, CA and Microchip Technology Inc. of Chandler, AZ, among others."

"Relevant information to be stored on information storage device 23 includes protectable information and rewritable information. Protectable information, which cannot be erased, includes, but is not limited to:

(1) type of cartridge 12,

(2) date cartridge 12 was manufactured,

(3) lot number for cartridge 12,

(4) sequential identification number assigned to cartridge 12 during manufacturer,

(5) date information storage device 23 was manufactured,

(6) lot number for information storage device 23,

(7) sequential identification number assigned to information storage device 23,

(8) machine identification number for cartridge 12 and/or storage device 23,

(9) shift (*i.e.*, time of day) during which cartridge 12 and/or storage device 23 were produced,

(10) country where cartridge 12 and/or storage device 23 were produced,

(11) facility code identifying the factory where cartridge 12 and/or storage device 23 were produced,

(12) operating limits, including but not limited to temperature, pressure, vibration tolerance, etc.

(13) materials used in manufacturing,

(14) anti-counterfeit information,

(15) fuel information, such as chemical formulation, concentration, volume, etc.,

(16) intellectual property information, including patent numbers and registered trademarks,

(17) safety information,

(18) security password or identification,

(19) expiration date based on date of manufacturing,

(20) shut-down sequence,

(21) hot swap procedure,

(22) recycling information,

(23) reactant information,

(24) fuel gauge type, and

(25) fluid sensor information.

Rewritable information includes, but is not limited to:

(1) current fuel level and/or current ion level in the fuel,

(2) number of ejections/separations of cartridge 12 from electrical device 11 and/or MEA 16 or number of times that cartridge 12 was refilled,

(3) fuel level on ejection/separation of cartridge 12 from electrical device 11 and/or MEA 16,

(4) number of insertions/connections of cartridge 12 to electrical device 11 and/or MEA 16,

(5) fluid level on insertion/connection of cartridge 12 to electrical device 11 and/or MEA 16,

(6) current operation status including rate of power consumption, acceptance/rejection of a particular electronic device 11,

(7) maintenance status and marketing information for future cartridge 12 designs,

(8) triggering events,

(9) expiration date based on actual usage,

(10) efficiency of the system,

(11) operational history of the fuel cell system, such as temperatures and pressures during selected time periods (*e.g.*, at start-ups and shut-downs or periodically), and

(12) operational history of the electronic devices 11, such as number of digital pictures per cartridge, maximum torque for power tools, talking minutes and standby minutes for cell phones, number of address look-ups per cartridge for PDAs, etc."

"Manufacturing information stored on information storage device 23 can help controller 18 to analyze the performance of fuel cartridge 12, to identify recalled or expired cartridges 12 and to ensure that the proper fuel cartridge 12 is connected to electronic device 11. The cartridge's volume can also be stored and accessed. As discussed above, calibration tables or curves for the sensors for the fuel gauge may also be provided."